Michigan Department of Transportation 5100B (07/07)

CHECKLIST TO DESIGNATE AREAS OF EVALUATION FOR REQUESTS FOR PROPOSAL (RFP)

Exhibit B

MDOT PROJECT MANAGER	JOB NUMBER (JN)	CONTROL SECTION (CS)
Suzette Peplinski	100377C	70013

DESCRIPTION IF NO JN/CS

MDOT PROJECT MANAGER: Check all items to be included in RFP. WHITE = REQUIRED GRAY SHADING = OPTIONAL Check the appropriate Tier in the box below			**CONSULTANT:** Provide only checked items below in proposal.
☒ **TIER I ($25,000-$99,999)**	☐ **TIER II ($100,000-$250,000)**	☐ **TIER III (>$250,000)**	
☒	☐	☐	Understanding of Service
☒	☐	☐	*Innovations*
☐	☐	☐	*Safety Program*
N/A	☐	☐	Organization Chart
☒	☐	☐	Qualifications of Team
☒	☐	☐	Past Performance
Not required as part of official RFP	Not required as part of official RFP	☐	Quality Assurance/Quality Control
☒	☐	☐	**Location:** The percentage of work performed in Michigan will be used for all selections unless the project is for on-site inspection or survey activities, then location should be scored using the distance from the consultant office to the on-site inspection or survey activity.
N/A	N/A	☐	Presentation
N/A	N/A	☐	Technical Proposal (if Presentation is required)
3 pages (MDOT forms not counted) **(No Resumes)**	7 pages (MDOT forms not counted)	19 pages (MDOT forms not counted)	Total maximum pages for RFP **not including key personnel resumes**

REQUEST FOR PROPOSAL

The Michigan Department of Transportation (MDOT) is seeking professional services for the project contained in the attached scope of services.

If your firm is interested in providing services, please indicate your interest by submitting a Proposal, Proposal/Bid Sheet or Bid Sheet as indicated below. The documents must be submitted in accordance with the latest "Consultant/Vendor Selection Guidelines for Service Contracts" and "Guideline for Completing a Low Bid Sheet(s)", if a low bid is involved as part of the selection process. **Referenced Guidelines are available on MDOT's website under Doing Business > Vendor/Consultant Services >Vendor/Consultant Selections.**

RFP SPECIFIC INFORMATION

☑ BUREAU OF HIGHWAYS ☐ BUREAU OF TRANSPORTATION PLANNING ** ☐ OTHER

THE SERVICE WAS POSTED ON THE ANTICIPATED QUARTERLY REQUESTS FOR PROPOSALS

☐ NO ☑ YES DATED 10/1/07 THROUGH 12/31/07

☑ **Prequalifed Services** – See page 1 of the attached Scope of Services for required Prequalification Classifications.

☐ **Non-Prequalifed Services** - If selected, the vendor must make sure that current financial information, including labor rates, overhead computations, and financial statements, if overhead is not audited, is on file with MDOT's Office of Commission Audits. This information must be on file for the prime vendor and all sub vendors so that the contract will not be delayed.

☑ **Qualifications Based Selection** – Use Consultant/Vendor Selection Guidelines

For all Qualifications Based Selections, the section team will review the information submitted and will select the firm considered most qualified to perform the services based on the proposals. The selected vendor will be contacted to confirm capacity. Upon confirmation, that firm will be asked to prepare a priced proposal. Negotiations will be conducted with the firm selected.

****For RFP's that originate in Bureau of Transportation Planning only**, a priced proposal must be submitted at the same time as, but separate from, the proposal. Submit directly to the Contract Administrator/Selection Specialist, Bureau of Transportation Planning **(see address list, page 2)**. The priced proposal must be submitted in a sealed envelope, clearly marked **"PRICE PROPOSAL."** The vendor's name and return address MUST be on the front of the envelope. The priced proposal will only be opened for the highest scoring proposal. Unopened priced proposals will be returned to the unselected vendor(s). Failure to comply with this procedure may result in your priced proposal being opened erroneously by the mail room.

For a cost plus fixed fee contract, the selected vendor must have a cost accounting system to support a cost plus fixed fee contract. This type of system has a job-order cost accounting system for the recording and accumulation of costs incurred under its contracts. Each project is assigned a job number so that costs may be segregated and accumulated in the vendor's job-order accounting system.

☐ **Qualifications Review / Low Bid** - Use Consultant/Vendor Selection Guidelines. See Bid Sheet Instructions for additional information.

For Qualification Review/Low Bid selections, the selection team will review the proposals submitted and post the date of the bid opening on the MDOT website. The notification will be posted at least two business days prior to the bid opening. Only bids from vendors that meet proposal requirements will be opened. The vendor with the lowest bid will be selected. The selected vendor may be contacted to confirm capacity.

☐ **Best Value** - Use Consultant/Vendor Selection Guidelines. See Bid Sheet Instructions below for additional information. The bid amount is a component of the total proposal score, not the determining factor of the selection.

☐ **Low Bid** (no qualifications review required - no proposal required.) See Bid Sheet Instructions below for additional instructions.

BID SHEET INSTRUCTIONS

A bid sheet(s) must be submitted in accordance with the "Guideline for Completing a Low Bid Sheet(s)" (available on MDOT's website). The Bid Sheet(s) is located at the end of the Scope of Services. Submit bid sheet(s) separate from the proposal, to the address indicated below. The bid sheet(s) must be submitted in a sealed manila envelope, clearly marked **"SEALED BID."** The vendor's name and return address MUST be on the front of the envelope. Failure to comply with this procedure may result in your bid being opened erroneously by the mail room and the bid being rejected from consideration.

PROPOSAL SUBMITTAL INFORMATION

REQUIRED NUMBER OF COPIES FOR PROJECT MANAGER	PROPOSAL/BID DUE DATE	TIME DUE
5	12/13/07	3:00 pm

PROPOSAL AND BID SHEET MAILING ADDRESSES

Mail the multiple proposal bundle to the MDOT Project Manager or Other indicated below.

☑ MDOT Project Manager ☐ MDOT Other

Suzette Peplinski, ITS Operations Engineer
1420 Front Ave., NW
Grand Rapids, Michigan 49504

Mail one additional stapled copy of the proposal to the Lansing Office indicated below.

	Lansing Regular Mail	OR	Lansing Overnight Mail
☑	Secretary, Contract Services Div - B470 Michigan Department of Transportation PO Box 30050 Lansing, MI 48909		Secretary, Contract Services Div - B470 Michigan Department of Transportation 425 W. Ottawa Lansing, MI 48933
☐	Contract Administrator/Selection Specialist Bureau of Transportation Planning B470 Michigan Department of Transportation PO Box 30050 Lansing, MI 48909		Contract Administrator/Selection Specialist Bureau of Transportation Planning B470 Michigan Department of Transportation 425 W. Ottawa Lansing, MI 48933

GENERAL INFORMATION

Any questions relative to the scope of services must be submitted by e-mail to the MDOT Project Manager. Questions must be received by the Project Manager at least four (4) working days prior to the due date and time specified above. All questions and answers will be placed on the MDOT website as soon as possible after receipt of the questions, and at least three (3) days prior to the RFP due date deadline. The names of vendors submitting questions will not be disclosed.

MDOT is an equal opportunity employer and MDOT DBE firms are encouraged to apply. The participating DBE firm, as currently certified by MDOT's Office of Equal Opportunity, shall be listed in the Proposal

MDOT FORMS REQUIRED AS PART OF PROPOSAL SUBMISSION

5100D – Request for Proposal Cover Sheet
5100G – Certification of Availability of Key Personnel
5100I – Conflict of Interest Statement

(These forms are not included in the proposal maximum page count.)

Michigan Department of Transportation

SCOPE OF SERVICE
FOR
DESIGN SERVICES
INTELLIGENT TRANSPORTATION SYSTEMS

CONTROL SECTION: 70013

JOB NUMBER: 100377 C

PROJECT LOCATION:
The project is located on US-31 from south of M-45 to North of Sherman in the City of Grand Haven, Ottawa County and Muskegon County.

PROJECT DESCRIPTION:
This scope consists of all work related to the design of two dynamic message signs (DMS) and approximately six traffic surveillance cameras along US-31, and the related communications infrastructure and encased fiber optic cable.

It also includes System Manager services for general systems project management during the procurement and deployment of the ITS infrastructure and systems as depicted in the Plans. These services include, but are not limited to, inquiry response, system testing and proofing, oversight of the installation and integration of the ITS field devices to ensure a functional system, and the general management for the procurement of ITS devices as required.

ANTICIPATED SERVICE START DATE: January 30, 2008

ANTICIPATED SERVICE COMPLETION DATE: October 30, 2008

PRIMARY PREQUALIFICATION CLASSIFICATION(S):
Intelligent Transportation Systems

SECONDARY PREQUALIFICATION CLASSIFICATION(S):
Maintaining Traffic Plans and Provisions
Road Design Surveys
Geotechnical Engineering Services

DBE REQUIREMENT: N/A

MDOT PROJECT ENGINEER MANAGER:

Suzette Peplinski, ITS Operations Engineer
Grand Region Office
1420 Front Ave., NW
Grand Rapids, MI 49504
Office: 616-451-8448
Fax: 616-451-0707
E-mail:peplinskis@michigan.gov

PROJECT CONSTRUCTION COST:

A. The estimated cost of construction is:

1.	**Mainline Pavement**	**$**
2.	**Geometric Improvement**	**$**
3.	**Environmental**	**$**
4.	**Drainage**	**$**
5.	**Safety**	**$**
6.	**Non Motorized**	**$**
7.	**Maintaining Traffic**	**$**
8.	**Miscellaneous Bridge Cost**	**$**
9.	**Detours and Maintaining Traffic**	**$ 15,000**
10.	**Permanent Pavement Markings/Signs/Signals**	**$**
11.	**Miscellaneous**	**$ 285,000**
	CONSTRUCTION TOTAL	**$ 300,000**

B. The estimated cost of real estate is: $ 0

The above construction total is the amount of funding programmed for this project. The Consultant is expected to design the project within the programmed amount.

If at any time the estimated cost of construction varies by more than 5% of the current programmed amount, then the Consultant will be required to submit a letter to the MDOT Project Manager justifying the changes in the construction cost estimate.

REQUIRED MDOT GUIDELINES AND STANDARDS:

Work shall conform to current MDOT, FHWA, and AASHTO practices, guidelines, policies, and standards (i.e., Road Design Manual, Standard Plans, Drainage Manual, Roadside Design Guide, A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.). Work shall also conform to the applicable specifications and Federal guidelines with regard to placing underground and overhead communications devices, such as those specified herein.

NOTE: A process change mandated by federal audit of MDOT's design process puts the Omissions and Errors Check Meeting after the Plan Completion. Please keep this in mind when preparing your schedule. See MDOT Road Design Manual, Chapter 14 – Procedures – Section 14.54 for corroboration. See "For Your Information" contacts at the end of this document for more info or questions.

Consultant is required to use MDOT's current version of Bentley MicroStation for CADD applications and Bentley GEOPAK for road design. Consultant shall comply with all MDOT CADD standards and file naming conventions.

CONSULTANT RESPONSIBILITIES:

Complete the design of this project including, but not limited to the following:

The Consultant must adhere to all applicable OSHA and MIOSHA safety standards, including the appropriate traffic signs for the activities and conditions for this job and perform field operations in accordance with the Department's Personal Protective Equipment (PPE) policy as stated in the MDOT Guidance Document #10118.

Meet with the MDOT Project Manager to review project, location of data sources and contact persons, and review relevant MDOT operations. The Consultant shall review and clarify project issues, data needs and availability, and the sequence of events and team meetings that are essential to complete the design by the project plan completion date. Attention shall be given to critical target dates that may require a large lead time, such as geotechnical requirements, ROW submittal dates, Railroad coordination requirements, utility conflict resolution, local agency meetings, etc.

A. Perform design surveys.

B. Prepare required plans, typical cross-sections, details, and specifications required for design and construction.

C. Compute and verify all plan quantities.

D. Prepare staging plans and special provisions for maintaining traffic during construction.

E. Provide solutions to any unique problems that may arise during the design of this project.

F. Maintain a Design Project Record which includes a history of significant events (changes, comments, etc.) which influenced the development of the plans, dates of submittals and receipt of information.

G. The Consultant shall be required to prepare and submit a CPM network for the construction of this project.

H. The Consultant representative shall record and submit minutes for all project related meetings to the MDOT Project Manager within two weeks of the meeting. The Consultant shall also distribute the minutes to all meeting attendees. MDOT will provide and distribute official meeting minutes for the Plan Review Meeting.

I. The Consultant will provide to MDOT at the scheduled submittal dates, copies of the required specifications and plan set materials for distribution by MDOT for all reviews for this project with the exception of The Plan Review. The Consultant shall contact the project manager prior to the submittal dates for the exact number of copies that will be required for submittal. The following is an estimate of the number of copies that will be needed; 10 sets – Base Plan, 20 sets - OEC Review.

J. Prepare and submit electronically (native format or Adobe PDF) any information, calculations, hydraulic studies, or drawings required by MDOT for acquiring any permit (ie. NPDES, DEQ, etc), approvals (i.e. county drain commission) and related mitigation. MDOT will submit permit requests.

K. Attend any project-related meetings as directed by the MDOT Project Manager.

L. Attend information meetings (i.e., public hearings, open houses, etc.) with the public and public officials to assist in responding to concerns and questions. May require the preparation of displays such as maps, marked-up plans, etc.

M. The Consultant shall assist in the review of utility permit requests, incorporate the information in the design plans, and respond within 2 weeks from receipt of the permit.

N. The MDOT Project Manager shall be the official MDOT contact person for the Consultant and shall be made aware of all communications regarding this project. The Consultant must either address or send a copy of all correspondence to the MDOT Project Manager. This includes all Subcontractor correspondence and verbal contact records.

O. The Consultant shall contact the MDOT Project Manager whenever discoveries or design alternatives have the potential to require changes in the scope, limits, quantities, costs, or right-of-way of the project.

P. The Consultant may be required to provide Design and System Manager Services during the construction phase of this project. If Construction Assistance is required, then a separate authorization for those services will be issued.

Q. The consultant's authorization will be open until final deliverables are received and accepted. The Consultant shall perform any project letting package modifications necessary to update the project specifications and details between the time of plan completion and advertisement of this project.

Project Details: Complete the design of this project including, but not limited to the following:

A. The project design and integration shall follow the Systems Engineering approach in accordance with the FHWA Rule on ITS Architecture and Standards Conformity. The Consultant shall draft a **project** concept of operations and a functional requirements document that defines the expected operational characteristics of the project upon completion.

B. Analyze and submit conceptual location layout options, including power and communications options, for the proposed ITS devices. Traffic surveillance camera locations will be investigated in the field using a bucket truck, or similar method, to simulate camera view from actual mounted height.

C. Design and System Manager Services during the construction phase of the project.

   a. Coordination with the MDOT contractor for procurement, integration, and field installation of ITS devices.
   b. Post-design services such as inquiry response and integration oversight, system testing and proofing, and the general management for the procurement of ITS devices as required.
   c. Oversee component and system acceptance tests and work with MDOT and its contractors, integrator, and vendors to perform all tests.

D. Perform required design and technical specification writing to repair, construct and integrate the proposed ITS facilities with the existing ITS system.

E. The consultant will be required to obtain boring(s) at each proposed DMS and surveillance camera location. Deeper soil borings with blow counts may be required, at the direction of the Grand Region Soils and Materials Engineer.

UTILITIES

The Consultant shall be responsible for obtaining and showing on the plans the location and names of all existing utilities within the limits of the project. In the course of resolving utility conflicts, the Consultant shall make modifications to the plans or design details and provide assistance as directed by the MDOT Utility Permits Engineer and/or Project Manager. The Consultant shall attend any utility meetings called to ensure that the concerns are addressed on the plans involving utilities. The Consultant shall assist in the review of utility permit requests to ensure compatibility with the project. The Consultant will be responsible for miscellaneous staking of utilities.

TRAFFIC CONTROL

The Consultant shall be responsible for all traffic control required to perform the tasks as outlined in this Scope of Design Services.

MDOT PERMITS

The Consultant shall be responsible for obtaining up to date access permits and pertinent information for tasks in MDOT Right of Way (ROW). This information can be obtained through Joe Rios, Utilities/Permits Section, Real Estate Division at (517) 241-2103.

MONTHLY PROGRESS REPORT

On the first of each month, the Consultant Project Manager shall submit a monthly project progress report to the Project Manager.

MDOT RESPONSIBILITIES:

A. Schedule and/or conduct the following:

1. Project related meetings.
2. The Plan Review
3. Utility Meetings.
4. Quantity summary sheets and final item cost estimates.
5. Packaging of plans and proposal.

B. Furnish Special Details and pertinent reference materials.

C. Furnish prints of an example of a similar project and old plans of the area, if available.

D. Obtain all permits for the project as outlined in previous section.

E. Coordinate any necessary utility relocation.

F. Furnish FTP site for software download and instructions for the MDOT Stand Alone Proposal Estimator's Worksheet (SAPW).

DELIVERABLES:

The Consultant shall deliver all computer files associated with the project in their native format (spreadsheets, CADD files, GEOPAK files, etc.) on DVD, CD or uploaded to ProjectWise, as directed by the MDOT Project Manager. All CADD/GEOPAK files shall be created and identified with standard MDOT file names as shown in Appendix A of the Road Design Manual. It is the Consultant's responsibility to obtain up to date MicroStation and GEOPAK seed/configuration files necessary to comply with MDOT's CADD standards which are posted to the bulletin board system. When the use of GEOPAK road design software is necessary to develop plans all pay items shall be placed into the CADD file using GEOPAK's Design and Computation Manager so that Quantity Manager can be used to transfer pay item information to

SAPW/Trns*port. Any CADD/GEOPAK files that do not conform to MDOT standards will be returned to the Consultant for correction at the Consultant's expense.

Proposal documents shall be submitted in their native format with standard naming conventions as well as combined into one Adobe PDF file in the sequence specified by MDOT. To provide text search capabilities the combined proposal shall be created by converting native electronic files to PDF. Scanning to PDF is discouraged except in instances where it is necessary to capturing a legally signed document or a hard copy version of a document is all that exists.

Plan files shall be submitted in their native dgn format with standard naming conventions as well as plotted into a combined Adobe PDF file. Plan sheets shall be plotted to Adobe PDF with full text search and level on/off capabilities in half size (11" x 17") formats. A full size title sheet shall be plotted stamped and signed then scanned for inclusion with the Adobe PDF set. The original title sheet will be sent to the MDOT Project Manager.

Stand Alone Proposal Estimator's Worksheet (SAPW) shall be used to generate the txt and csv files necessary for import into the Trns*port bid letting software. The SAPW files shall be transmitted electronically by the method specified by the MDOT Project Manager.

The project construction, removal and profile sheets will require a ratio (scale) of **1:40 (English Units).**

Other plan sheets that are required for this project shall be completed by the Consultant. These include, but are not limited to the following plan sheets:

A. The title sheet. MDOT will provide a map of the area on a disk in our workstation format. If the map is not available, MDOT will provide a map that could be used. The Consultant shall be responsible for any revisions to the title sheet and the title sheet and map shall meet MDOT format and layout guidelines.

B. Note Sheet.

C. Cross-Sections.

D. Project specific Special Details.

E. Guardrail detail sheets, if needed.

All plans, special provisions, estimates, and other project related items shall meet all MDOT requirements and detailing practices (i.e., format, materials, symbols, patterns, and layout) or as otherwise directed by the Project Manager. All plans, specifications, and other project related items are subject to review and approval by MDOT.

PROJECT SCHEDULE:

The Consultant shall use the following events to prepare the proposed implementation schedule as required in the Guidelines for the Preparation of Responses on Assigned Design Services Contracts. These dates shall be used in preparing the Consultant's Monthly Progress Reports.

Target Date	Task #	Description
01/30/08		*Anticipated date of Authorization for Design Services*
	3330	Conduct Design Survey
	3360	Prepare Base Plans
02/21/08		*Submit Base Plans for MDOT Review*
02/25/08	3380	*Base Plan Review (Consultant Run)*
	3530	Conduct Structure Foundation Investigation
	3540	Develop Construction Zone Traffic Control Plan
	3580	Develop Preliminary Plans
03/26/08		*Submit Preliminary Plans for MDOT Review*
04/17/08	3590	*Review Preliminary Plans (The Plan Review)*
	3830	Complete the Construction Zone Traffic Control Plan
	3840	Develop Final Plans and Specifications
05/19/08		*Submit Final Plan/Proposal Package to MDOT for Final Review*
		Consultant's Plan Completion
06/16/08	3870	Hold Omissions/Errors Check (OEC) Meeting
06/23/08		Final Construction Plan/Proposal package with recommendations incorporated to MDOT
09/05/08		**Target Letting Date**
10/10/08		*Final Deliverables to MDOT*

PAYMENT SCHEDULE

Compensation for this Scope of Services shall be on an **actual cost plus fixed fee** basis.

CONSULTANT PAYMENT:

All invoices/bills for services must be directed to the Department and follow the 'then current' guidelines. The latest copy of the "Professional Engineering Service Reimbursement Guidelines for Bureau of Highways" is available on MDOT's Bulletin Board System. This document contains instructions and forms that must be followed and used for invoicing/billing; payment may be delayed or decreased if the instructions are not followed.

Payment to the Consultant for Services rendered shall not exceed the "Actual Cost Plus Fixed Fee, Not to Exceed Maximum Amount" unless an increase is approved in accordance with the contract with the Consultant. All invoices/bills must be submitted within 14 calendar days of the last date of services being performed for that invoice.

Direct expenses will not be paid in excess of that allowed by the Department for its own employees in accordance with the State of Michigan's Standardized Travel Regulations. Supporting documentation must be submitted, with the invoice/bill, for all billable expenses on the Project. The only hours that will be considered allowable charges for this contract are those that are directly attributable to the activities of this Project.

The use of overtime hours is not acceptable unless prior written approval is granted by the MDOT Region Engineer/Bureau Director and the MDOT Project Engineer Manager. Reimbursement for overtime hours that are allowed will be limited to time spent on this project in excess of forty hours per person per week. Any variations to this rule should be included in the priced proposal submitted by the Consultant and must have prior written approval by the MDOT Region Engineer/Bureau Director and the MDOT Project Engineer Manager.

The fixed fee for profit allowed for this project is 11.0% of the cost of direct labor and overhead.

FOR YOUR INFORMATION:

For questions on specific tasks, refer to the P/PMS Task Manual located on the MDOT Bulletin Board System.

For assistance in accessing this manual, please contact one of following:

Dennis Kelley: (517) 373-4614

Tonya Nobach: (517) 335-1927

ATTACHMENT A

SURVEY SCOPE OF WORK

As of 10/18/07

Survey Limits: As needed for Design and Construction as described in the Design Scope of Services. A description of survey limits must be included in the Survey Work Plan.

NOTES: The Selected Consultant shall discuss the scope of this survey with an MDOT Region Surveyor or an MDOT Lansing Design Surveyor before submitting a priced proposal.

The Selected Consultant surveyor must contact the Region or TSC Traffic and Safety Engineer for work restrictions in the project area prior to submitting a priced proposal.

A Survey Work Plan must be included in the project proposal. A spreadsheet estimate of hours by specific survey task such as traversing, leveling, mapping, etc. must be included in the priced proposal.

It is the responsibility of the Professional Surveyor to safeguard all corners of the United States Public Land Survey System, published Geodetic Control and any other Property Controlling corners that may be in danger of being destroyed by the proposed construction project.

GENERAL REQUIREMENTS:

1. Surveys must comply with all Michigan law relative to land surveying.

2. Surveys must be done under the direct supervision of a Professional Surveyor licensed to practice in the State of Michigan.

3. Work in any of the following categories of survey: Road Design, Structure, Hydraulic, Right-of-Way, and/or Ground Control (Photogrammetric) must be completed by a survey firm which is pre-qualified by MDOT for that category.

4. Surveys must meet all requirements of the Michigan Department of Transportation (MDOT) Design Surveys *Standards of Practice* dated March 2007, the MDOT Design Survey Manual on-line, and the MDOT RTK guidelines. Please contact the Design Survey office to clarify any specific questions regarding these standards.

5. Consultants must obtain all necessary permits required to perform this survey on any public and/or private property, including an up-to-date permit from the MDOT Utilities Coordination and Permits Section.

6. Prior to performing the survey, the Consultant must contact all landowners upon whose

lands they will enter. The contact may be personal, phone or letter, but must be documented. This notice must include the reasons for the survey on private land, the approximate time the survey is to take place, the extent of the survey including potential brush cutting (which must be minimized), and an MDOT contact person (the MDOT Project Manager or designate).

7 The Consultant must contact any and all Railroads prior to commencing field survey on railroad property. The cost for any permit, flaggers and/or training that is required by the Railroad will be considered as a direct cost, but only if included in the Consultant's priced proposal.

8. The Consultant must adhere to all applicable OSHA and MIOSHA safety standards, including the appropriate traffic signs for the activities and conditions for this job.

9. Consultants are responsible for a comprehensive and conscientious research of all records, including MDOT records, essential for the completion of this project.

10. Measurements, stationing, recorded data, and computations must be in **International Feet**, unless specified otherwise by the MDOT Project Manager.

11. Coordinate values shall be based upon the Michigan State Plane coordinate system NAD83 (CORS). All elevations must be based upon the North American Vertical Datum of 1988 (NAVD88). The datums must be clearly stated in the Survey Work Plan. A preliminary submittal of the adjusted Horizontal and Vertical control for the project may be submitted to the MDOT Survey Consultant Coordinator or Region Surveyor for review and acceptance as soon as it is available.

12. The survey notes must be submitted to the Design Survey Unit in 10" by 12" divided portfolios with flap covers. As many portfolios should be used as are needed to contain all of the required documents and Compact Discs (CD's) or DVD'**. Duplicate CD's must be included in the portfolio, with one set labeled "Region Surveyor."**

13. Each portfolio must be labeled on the outside as in the following example:

    Survey Notes for:
    Route, Location and Project Limits [I-94 under Beaubien Street]
    Control Section [S06 of 82024] Job Number [45197D] Date [*of submittal*]
    By [*Name of Firm*]
    Michigan Professional Surveyor [ ] License # [ ]

14. Each submittal is to be divided into six sections. These sections are to be labeled as follows: **Administrative, Alignment, Control**, **Property**, **Mapping**, and **Miscellaneous**.

15. **All data**, whether electronic or paper, **must be recorded on non-rewritable Compact Discs (CD's) or DVD's**. All paper files, including MicroStation files, must be scanned and/or converted to Adobe Acrobat .PDF format. CD's must be organized in the same

manner as the portfolio, such as by Administrative section, Control section, etc. A Table of Contents in Adobe Acrobat format is required that has all .PDF pages of the CD bookmarked/linked so each place in the .PDF archive can be accessed with a single click of the computer mouse. Specified format files such as ASCII text, CAiCE and MicroStation must have separate access in native format outside of the .PDF file. CD's must be labeled with the control section, job number, data type and file names. It is not necessary to label each individual paper page in the portfolio.

16. Each category of survey must be packaged separately (i.e., Structure surveys separate from Road surveys and Hydraulic surveys). CD's must be labeled with the Control Section, Job Number, data type and file names.

17. The Consultant representative shall record and submit typewritten minutes for all project related meetings to the MDOT Project Manager within two weeks of the meeting. The Consultant shall also distribute the minutes to all meeting attendees.

18. The MDOT Project Manager is the official contact for the Consultant. The Consultant must send a copy of all project correspondence to the MDOT Project Manager. The MDOT Project Manager shall be made aware of all communications regarding this project. Any survey related questions regarding this project should be directed to a Survey Consultant Project Manager or MDOT Region Surveyor.

At the completion of this survey for this project, legible copies of all field survey notes, all electronic data, and all research records obtained for this project will be considered the property of MDOT and **must be sent to** the MDOT, Design Support Area, Supervising Land Surveyor, P.O. Box 30050, Lansing, MI 48909. Please use MDOT's Form 222(5/01) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL" for all transmittals. A copy of this transmittal form must also be sent to the MDOT Project Manager for Design.

Acceptance of this survey by the MDOT Supervising Land Surveyor and/or the MDOT Project Manager does not relieve the Consultant of any liability for the content of the survey.

WORK RESTRICTIONS

The Selected Consultant and the Selected Consultant only, is advised to discuss Traffic Control scenarios with the MDOT Traffic and Safety Engineer at the appropriate MDOT TSC prior to submitting a priced proposal.

No work shall be performed or lane closures allowed during the Memorial Day, July 4th, or Labor Day holiday periods, as defined by the MDOT Project Manager or representative specifically designated by the Project Manager.

The Consultant must call the MDOT TSC Traffic and Safety Engineer before beginning work to inform him or her of surveying activity in the area. The MDOT TSC must be notified at least two weeks prior to lane closures so advance notice can be posted on the Web site.

Traffic shall be maintained by the Consultant throughout the project in accordance with Sections 812, 922, 103.05 and 103.06 of the *Standard Specifications for Construction,* 2003 edition, www.mdot.state.mi.us/specbook/, and Supplemental Specification 03SS001(2) Errata to the 2003 Standard Specifications and all other supplemental specifications currently in effect against the Standard Specifications for Construction. All traffic control devices shall conform to the current edition, as revised, of the *Michigan Manual of Uniform Traffic Control Devices* (MMUTCD). All warning signs for maintenance of traffic used on this project shall be fabricated with prismatic retro-reflective sheeting, and shall be set up five feet above ground.

The Consultant shall use MDOT standard "maintaining traffic" typicals for any and all closures. Typical MDOT traffic control diagrams are available on line at www.mdot.state.mi.us/tands/plans.cfm

COORDINATION WITH OTHER CONTRACTS IN THE VICINITY

The Consultant shall coordinate his operations with contractors performing work on other projects within or adjacent to the Construction Influence Area (CIA).

The Consultant's attention is called to the requirements of cooperation with others as covered in Article 104.07 of the 2003 Standard Specifications for Construction. Other contracts or maintenance operations may occur during the life of the project.

No claim for extra compensation or adjustment in contract unit prices will be allowed on account of delay or failure of others to complete work unit scheduled.

FIELD SURVEY

The purpose of the field survey is to obtain all information and data required by the project design engineer, to leave control in the field for future construction staking, and to provide a sufficient history of the area to enable the MDOT Design Survey Unit to perform dependable surveys in the future. The Consultant surveyor must discuss the scope of this survey with the project design engineer before initiating any work on this project. Notes of this meeting and a detailed Survey Work Plan with an estimate of hours broken down by specific survey task must be submitted to the MDOT Project Manager and Survey Consultant Project Manager within two weeks of this meeting.

CONTROL

A three dimensional control system must be established throughout the project area. This control shall be based on the Michigan State Plane Coordinate System NAD1983 (CORS) horizontal datum and NAVD 1988 vertical datum. All subsequent control must be based on the established control. Any traverse points or bench marks established must adhere to the Michigan Department of Transportation (MDOT) Design Surveys *Standards of Practice* dated March 2007 and be listed in the Control pocket of the portfolio. Contact the MDOT Survey Consultant Coordinator for existing control in the area.

OPUS positioning may be used as a check, and for positioning Primary Control as defined in the MDOT Standards of Practice for Design Survey March 2007. For any and all OPUS solutions, a RINEX format file with a minimum of two hours of GPS data must be included, as well as the OPUS solution (extended version) from NGS. All OPUS solutions must be verified within 0.20 foot, either by a separate OPUS solution from an independent occupation, or by a NGS/CORS adjustment.

If GPS-derived elevations are used, the Surveyor's Report and the Witness List and Witness Sheet for the project must clearly state that the vertical datum is "NAVD 1988 GPS-derived from Geoid 03."

A mapping control point that is a rebar in the ground should not be considered a benchmark. The elevation of a rebar that is a control point should be verified or re-established prior to use as a benchmark.

The Witness list sheet for this project must have a formula for grid to ground conversion, and a statement that a mapping control point that is a rebar in the ground should not be considered a benchmark, and its elevation should be verified or re-established prior to use.

All Witness lists, for horizontal control, benchmarks, government corners, and alignment points, must use all capital letters exclusively. Capital letters are easier to read on half-size plan sheets.

GOVERNMENT CORNERS

Any PLSS corners within the project limits must be recovered or established and tied to the project coordinate system. Any PLSS corners necessary for legal alignment determination and/or property ties for Right of Way issues must be recovered or established and tied to the project coordinate system.

All PLSS corners must be recorded in accordance with PA 74 of 1970, as amended, and all applicable administrative rules. A copy of each recorded Land Corner Recordation Certificate must be submitted to the MDOT Design Survey Office as part of the final report. All PLSS corners located in hard surface roads must be protected by a monument box, regardless of impending construction. The Consultant shall provide to the Survey Consultant Project Manager a list of any affected Government or Property Controlling Corners in the detailed work plan for discussion or approval.

The Consultant surveyor must contact the County Remonumentation Representative prior to beginning work on the project to inform him of proposed corner perpetuation activities, and to obtain information pertinent to PLSS corners and/or property controlling corners affected by project construction.

All **monument boxes** through the project area must be accounted for by the Consultant surveyor, shown on the project mapping, and have a recorded LCRC submitted in the survey portfolio.

ALIGNMENT

Since most existing alignment points locate and define the boundary between the public Right of Way and private ownership, legal alignment points are considered Property Controlling Corners and must be recovered and recorded in accordance with PA 74 of 1970, as amended, and all applicable administrative rules. A copy of each recorded Land Corner Recordation Certificate must be submitted in the Property Section of the final portfolio.

The Consultant must clearly define in the Work Plan what type of alignment(s) is proposed, Legal or As Constructed, how the stationing will be established, and whether or not the alignment(s) will be staked in the field.

An **alignment sheet** must be prepared and submitted that shows the alignment(s) with stationing and coordinates, and the source of stationing, curve data, and the alignment definition (As Constructed or Legal). All alignments must be **annotated** as in the following examples: As Constructed alignment for CS 45011 as surveyed in 2006, or Legal Alignment of 1952 for CS 38016 as surveyed in 2007. Showing government corners with distances along government lines to the alignment are also appropriate for this CADD drawing. MicroStation is the recommended format. Some tangents may be graphically shortened to "shrink" the drawing to fit paper size.

The Consultant must provide an **alignment control point list with witnesses** in ASCII format for all alignment points found or set. This list must include include datum, point designations, descriptions, coordinates, combined Scale Factor, and witnesses. This list may be appended to the witness list for horizontal and vertical control points. Witness lists must use only uppercase letters.

All **monument boxes** through the project area must be accounted for by the Consultant surveyor, shown on the project mapping, and have a recorded LCRC submitted with the survey portfolio.

MAPPING

The Consultant must submit a **CAiCE software file, named MDOTjob#.zip**, utilizing CAiCE's built-in archive feature, of all survey mapping points and data files for the mapping area. If a Digital Terrain Model is needed for the project, it must be created in CAiCE and named EXRD. **The CAiCE software used must be Version 10.6 or newer.**

The Consultant is responsible for using the latest MDOT CAiCE Feature Codes, files and Plans Production tugboat (macro), available on the MDOT Design Survey File Transfer Protocol (FTP) site at **ftp://ftp.michtrans.net**/. The consultant Username is "survcons." The consultant Password is $urvcon$. The tugboat can also be used to convert CAiCE files into Geopak and MicroStation formats.

The Consultant must provide an electronic **MicroStation Intergraph Version 8 format file** of the mapping area. This must be named MDOTjob#pl.dgn, for example **79023Cpl.dgn,** and must be submitted **in a sub-directory outside of the CAiCE archive file** named "MicroStation." The MicroStation file will be a 2-D file of the planimetric features including contours. This file must

be sized appropriately, utilize the seed file **seedrd_c.dgn** with working units of 1000, 1, and be compiled in standard MDOT format. The Consultant is responsible for using the latest MDOT Resource files, color table, and cell files, available on the MDOT File Library site under CAD_V8. Go to http://mdotwas1.mdot.state.mi.us/public/bbs/

For a comprehensive list of MicroStation level designations, contents and line attributes, refer to the "MDOTV8LEVEL.pdf" table located on the MDOT Design Survey File Transfer Protocol web site. This table replaces the former Attachments AA, C & D. Also in the ftp site, the Consultant should refer to the V8GROUP&ALPHA LIST.pdf file for Data Collection Codes.

The Consultant must also submit **files created from CAiCE that are formatted for design in Geopak** software. This can be accomplished by using the MDOT Plans Production CAiCE Tugboat available on the MDOT Design Survey FTP site. The Consultant must submit a 3D MicroStation Triangle file, a Survey Chain (TIN Boundary) around the edited Triangle file with the name and Feature "CLIP", a Job#.OBS file, a Job#.KCP file, a Job#.XYZ file and a Job#.ALI file. Each alignment must be computed separately and uniquely named to include the JN and a description, such as 79585_AsC_Wbd.ALI. These files must be submitted electronically **in a subdirectory outside of the CAiCE archive file** named "Geopak."

POST SURVEY CLEAN-UP

Once the survey is complete, all stakes must be removed to aid the maintenance crews and adjacent property owners. All benchmarks and control points and their witnesses must remain in place.

FINAL REPORT: DELIVERABLES

The final report for this project shall include:

1. In the first pocket of the portfolio, labeled **ADMINISTRATIVE**, the following will appear:
   a. MDOT's Form 222(5/01) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL"
   b. The project's Professional Surveyor's Report on company letterhead consisting of:
      i) A comprehensive synopsis of the work performed on this project, signed **and sealed** by the project's Professional Surveyor.
      ii) The source and methods used to establish the project horizontal and vertical control and alignment(s) for this project.
      iii) A detailed explanation of anything discovered during the survey of this project that may create a problem for the designer or another surveyor.
   c. CD or DVD with all documents scanned or converted into PDF files. Each page must be inserted in a master PDF file and bookmarked for easy retrieval. An example can be provided upon request.
   d. MDOT QA/QC Checklist.

2. In the second pocket of the portfolio, labeled **ALIGNMENT**, the following will appear:
   a. An annotated CADD drawing of the alignment(s), showing:

i) A statement defining the alignment(s) as **legal or as constructed**
ii) Stationing, source of stationing, and station equation to existing stationing
iii) Horizontal coordinates of P.I.'s, at a minimum
iv) Curve data
v) Alignment points found or set
vi) Control points
vii) Reference lines and angles of crossing (if appropriate)
viii) Government corners and ties to government lines

b. Witness list for the alignment points found or set, which shows coordinates, stationing and four witnesses for each alignment point. Witness lists must use only uppercase letters.
c. LCRC's for alignment points found.

3. In the third pocket of the portfolio, labeled **CONTROL**, the following will appear:
   a. Documentation of horizontal and vertical datum sources.
   b. OPUS documentation
   c. Least squares adjustments for the horizontal and vertical control.
   d. Text files in ASCII format, hard copy and on CD, which contain the witness lists for the horizontal alignment ties, horizontal control points, benchmarks and government corners. All witness lists must note the datum(s), a combined scale factor for state plane grid-to-ground conversion, and an example thereof. Witness lists must use only uppercase letters.
   e. A MicroStation V8 file showing the data in d. above.

4. In the fourth pocket of the portfolio, labeled **PROPERTY**, the following will appear:
   a. Tax maps and descriptions with owner names, addresses and phone numbers, if Right of Way is to be acquired.
   b. Maps, plats, and recorded surveys.
   c. Documents such as plats, Act 132 Certificates and/or tax maps marked with point numbers as property ties, if Right of Way is to be acquired.
   d. Legible **recorded** copies of all Land Corner Recordation Certificates (LCRC) filed for the government corners (PLSS corners and Property Controlling Corners) used for computations and/or in danger of obliteration by impending construction.

5. In the fifth pocket of the portfolio, labeled **MAPPING**, the following will appear:
   a. Mapping file in MicroStation V8 format, and also converted to .PDF format. Hardcopy signed and sealed. All point and line descriptions must use only upper case letters.
   b. An archived CAiCE software file.
   c. Geopak files.
   d. All field survey notes and electronic mapping data used for the project. It is not necessary to submit electronic raw survey data in hardcopy form.
   e. All supporting and supplemental information or data, such as drainage and utilities, electronically only if possible.

6. In the sixth pocket of the portfolio, labeled **MISCELLANEOUS**, the following will appear:
   a. Any photographs taken for clarity of an area

b. Any newspaper clippings related to the project
c. Any information not covered in this scope that will be of benefit to the designer or another surveyor

General Notes

a. It is the responsibility of the Consultant to insure that all electronic files submitted to MDOT conform to the required format and that all documents are legible.
b. The Consultant must organize and label the various sections of the portfolio as required by the Standards of Practice for MDOT Design Surveys dated March 2007.
c. All research documents are required to be scanned and placed on the CD.
d. It is desirable to limit paper and to include as much electronic data as possible on Compact Disc or DVD, including scanned items, to facilitate future electronic storage and transmission of survey data. **Duplicate CD's must be included in the portfolio, with one set labeled "Region Surveyor".**